REMARKS

Claims 1 – 23 are pending in the application, with claims 1 – 13 having been withdrawn from consideration. In the present Response, the specification is amended. No new matter has been added.

OBJECTION TO SPECIFICATION

The specification is objected to in regard to informalities, and a request is made to update the application information presented at page 9, lines 3, 4 in regard to Japanese Patent Application 10-144913. Applicants amend the specification to address the informalities, and to indicate that Japanese Patent Application 10-144913 issued as Japanese Patent No. 3,480,313. Accordingly, Applicants respectfully request that the objection be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

Claims 13-23 are rejected under 35 U.S.C. 103 as being unpatentable over Long et al. (US Patent 5,991,311) in view of Qureshi et al (US Patent 4,756,007). Applicants respectfully traverse these rejections.

In a Response mailed September 3, 2004, Applicants made the following arguments:

In independent claims 13, 18 and 22, Applicants respectively disclose a digital subscriber line transmission method, apparatus and system in a communication network for transmitting downstream data from a device on an office side to a device on a subscriber side and upstream data from the device on the subscriber side to the device on the office side over a single line by switching between these data transmissions in time-division fashion. The data is divided into individual symbols, the individual symbols are modulated by carrier waves of different frequencies and frequency-multiplexed, and the frequency-multiplexed signals are transmitted in bursts a few symbols at a time. In each of independent claims 13,

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18 and 22, limitations are provided that relate to the transmission of timing information in a training symbol sequence. For example, in independent claim 13, a method is disclosed comprising the steps of: a) incorporating timing information, which specifies an interval in which effects of crosstalk from a neighboring line are received, in a training symbol sequence at time of training carried out prior to data communication, and b) transmitting the training symbol sequence in which the timing information is incorporated from the device in the office side to the device on the subscriber side.

Long discloses a method and apparatus for reducing crosstalk in a TDD-xDSL system (see, e.g., abstract of Long). The Examiner acknowledges that Long fails to disclose Applicants' claimed timing-information insertion means for inserting timing information, which specifies an interval in which effects of crosstalk from a neighboring line are received, into a training symbol sequence at time of training carried out prior to data communication, and transmitting unit for transmitting the training symbol sequence, into which the timing information has been inserted, from the device on the office side to the device on the subscriber side (see, e.g., Applicants' independent claim 18). The Examiner notes, however, that Long does disclose that timing information may be distributed by a master modem to other modems by undisclosed means (see, e.g., column 11, line 54 – column 12, line15 of Long), and further suggests that Long may thereby be combined with Quereshi to teach the missing claim limitations.

Quereshi discloses an adaptive communication rate modem used for enabling communications at multiple rates that are selected based on channel quality (see, e.g., abstract of Quereshi). In the modem of Quereshi, a training sequence may be initiated by the modem at system initialization or after a communication rate change for setting demodulator phase and equalizer coefficients used for Viterbi decoding(see, e.g., column 4, lines 10 – 44 of Quereshi). However, Applicants respectfully submit that, in sharp contrast to Applicants' claimed invention, neither Long nor Quereshi specifically disclose or suggest Applicants' claimed incorporation of timing information as part of a training symbol sequence.

Moreover, Applicants further submit that insufficient motivation exists for combining the Long and Quereshi references. As previously noted, Quereshi fails to disclose or suggest that a training symbol sequence may be used for transmitting timing information relating to crosstalk from a neighboring line. While Long notes that one modem may provide timing information to another modem, Long suggests that such information be provided periodically "during normal operation". Thus, Long teaches away from Applicants' claim limitation requiring that the timing information be sent "at a time of training carried out prior to data communication", and thereby also fails to motivate combination with Quereshi's training sequence provided at system initialization.

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The Examiner finds these argument to be unpersuasive. With respect to the argument that neither Long nor Quereshi specifically disclose or suggest Applicants' claimed incorporation of timing information as part of a training symbol sequence, the Examiner disagrees and states:

> Applicant does not specify the form of the "training information." Therefore, Examiner is free to interpret the phrase as broadly as possible, as long as the interpretation is reasonable. Quereshi discloses including a phase change in the training signal, which allows the units to synchronize (col. 4, lines 34 – 40). As broadly defined, this phase changes, which permits synchronization, is timing information.

Applicants respectfully disagree. In independent claims 13, 18 and 22, Applicants specify that the transmitted timing information "specifies an interval in which effects of crosstalk from a neighboring line are received". In sharp contrast, the phase transition transmitted by Quereshi's modem is <u>not</u> directed to specifying a crosstalk interval, but rather to establish synchronization for identifying subsequent training sequences (see, e.g., column 4, lines 37 – 40).
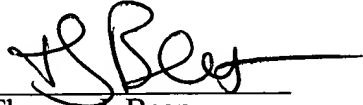
Accordingly, Applicants respectfully submit that independent claims 13, 18 and 22 are not made obvious by the cited references, and are in condition for allowance. As each of dependent claims 14 – 17, 19 – 21 and 23 depends from one of independent claims 13, 18 and 22, Applicants further submit that dependent claims 14 – 17, 19 – 21 and 23 are allowable for at least this reason.

CONCLUSION

In view of the amendments and set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

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Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,

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